OL-045 CpG DNA can enhance specific immune responses in mice immunized with recombinant hepatitis B surface antigen and hepatitis B vaccine

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Background: Recently, studies showed that bacterial DNA and synthetic non-methylated CpG containing Oligonucleotide (CpG-ODN) can stimulate the immune response, promoting the proliferation and differentiation of immune cells.
Methods: BW006 (CpG-ODN) was used as an adjuvant for recombinant HBsAg to immunize 6- to 8-week-old female BALB/c mice with or without aluminium for different dosages. The production of HBsAb, CD80 and CD86 from dendritic cells were analyzed and compared for the performance of immunization.
Results: BW006 dose dependant co-stimulation effect of HBsAb serum conversion on regular HBV vaccine (containing aluminium adjuvant) was seen between the ranges of 1.25 μg to 20 μg. Mice vaccinated with 20 μg BW006 and vaccine showed the highest concentration of antibody production. 5–20 μg BW006 had the best co-stimulation effect of HBsAb serum conversion for mice vaccinated with recombinant HBsAg. 20 μg BW006 increased the positive proportion (15.14% for BW006 alone and 15.84% for BW006 and 4 μg recombinant HBsAg) and fluorescent intensity (139.86 for BW006 alone and 158.67 for BW006 and 4 μg recombinant HBsAg) of surface molecule CD80 expression in leucocyte cells. The same trend was seen in CD86, in which positive expression proportion almost doubled in groups with BW006 compared with that in the control group (52.12% vs. 27.37%) or in 4 μg recombinant HBsAg injection alone group (54.09% vs. 28.36%). The fluorescent intensity of CD86 expression also increased with BW006 compared with that of the control group (292.68 Vs. 213.78) or of HBsAg alone group (299.35 Vs. 211.78).
Conclusions: Our results confirmed the adjuvant effect of BW006 for HBsAg in the mouse model. The activation of CD80 and CD86 molecules by CpG-ODN might be part of the mechanism of T/B cells coordination and the enhancement of recombinant HBsAg induced immune response.

OL-046 Polymorphism analyses of DC-SIGN promoter in HBV patients

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Background: DC-SIGN is known to be a novel receptor on the human dendritic cells, and the promoter region mutation of DC-SIGN have a broad rang of influence with some pathogens, for example human immunodeficiency virus type 1 (HIV-1), hepatitis C virus (HCV) and mycobacterium tuberculosis. But it is poorly understood in hepatitis B virus (HBV). To investigate whether there is mutation in DC-SIGN promoter region in patients with chronic hepatitis B (CHB) and healthy persons previously infected with HBV for exploring the relationship between the mutation in DC-SIGN promoter region and HBV.
Methods: The studied population was composed of two cohorts of 47 CHB patients and 20 healthy persons previously infected with HBV. The mutation in DC-SIGN promoter region detection was performed by using polymerase chain reaction, single-stranded conformational polymorphism and heteroduplex analysis, cloning, sequencing and aligning with the published DC-SIGN promoter sequence.
Results: The characteristic mutation within DC-SIGN promoter region in HBV infection individuals was observed. In DC-SIGN promoter region, four hot spot mutations located in positions −139, −142, −222, and −336 were observed in CHB patients, but only one spot mutation located in position −139 was observed in healthy persons previously infected with HBV. The −336C which was absent in healthy persons previously infected with HBV was shown in 11 CHB patients (23.40% (11/47)). The −139T was far more frequent in healthy persons previously infected with HBV (100% (20/20)) than in CHB patients (34.04% (16/47)).
Conclusions: Perhaps, in DC-SIGN promoter region, the −336C is a genetic risk factor for developing CHB, but the −139T may be associated with protection against HBV.

OL-047 Long-term therapy with adefovir dipivoxil for HBeAg positive chronic hepatitis B: results from 144 weeks adefovir dipivoxil treatment

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Background/Aim: Adefovir dipivoxil (ADV) has shown efficacy and safety in a broad range of populations with chronic hepatitis B over 48 to 96 weeks. This study reports the 144-week long-term efficacy data with ADV treatment in nucleoside-naive HBeAg-positive chronic hepatitis B.
Methods: Ninety-eight HBeAg-positive patients who had never received nucleoside treatment received 144-week ADV10 mg/d therapy. All patients had serum level of HBV load over 10^5copies/ml and increased serum alanine aminotransferase (ALT) level. Based on serum ALT levels at baseline, all patients were divided into two groups, A (48 patients with serum ALT level less than 200 U/L) and B (50 patients with ALT level more than 200 U/L). Serum HBV load was measured with quantitative real-time-PCR. ALT activity, HBeAg, anti-HBe-antibodies, HBVDNA level in serum were evaluated at baseline, week 12, 24, 48, 96 and 144 and during therapy.
Results: After 24 weeks of therapy, mean reduction of HBVDNA level, the percentage of patients with HBVDNA lower than 5log10 copies/ml and the percentage of patients with HBVDNA level decrease of more than 2log10 copies/ml in group B were significantly higher than those in group A ($P < 0.05$, respectively). At the end of 24, 48, 96 and 144 weeks, the patients in group B had higher rates of undetectable serum HBVDNA levels and ALT normalization than those in group A ($P < 0.05$, respectively). HBeAg seroconversion rate was significant hihger in group B than those in group A ($P < 0.05$). There was no evidence of adverse effect in patients treated for up to 144 weeks.
Conclusions: ADV is an effective treatment option for nucleoside-naive patients with HBeAg-positive chronic hepatitis B, especially for those with high serum ALT levels at baseline. Adefovir dipivoxil treatment through 144 weeks was well tolerated and resulted in continued benefit for patients with HBeAg-positive chronic hepatitis B.